Strategy for Addressing

HIV/AIDS and Infectious Diseases

in

Asia and the Near East

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
ASIA AND NEAR EAST BUREAU
OFFICE OF STRATEGIC AND ECONOMIC ANALYSIS

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LIST OF ACRONYMS

ACTMalaria	Asian Collaborative Training Network for Malaria
AFRIMS	Armed Forces Research Institute of Medical Sciences, Bangkok
AMR	Antimicrobial resistance
ANE	Asia and Near East Bureau (USAID)
ALRI	Acute Lower Respiratory Infections
APUA	Alliance for the Prudent Use of Antibiotics
AURI	Acute Upper Respiratory Infections
BASICS	Basic Support for Institutionalizing Child Survival Project (USAID)
CDC	U.S. Centers for Disease Control and Prevention
CHANGE	Behavior Change Project (USAID)
DALY	Disability Adjusted Life Years
DD	Diarrheal Diseases
DOTS	Directly Observed Therapy, Short-Course (for Tuberculosis)
EHP	Environmental Health Project (USAID)
EMR	Eastern Mediterranean Region of WHO
FHI	Family Health International
GTZ	(German Development Group)
HIID	Harvard Institute for International Development
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HKI	Helen Keller International
IBIS	Invasive Bacterial Infection Surveillance Project (India INCLEN)
ICDDR,B	International Center for Diarrheal Disease Research, Bangladesh
ID	Infectious disease
IHAA	International HIV/AIDS Alliance
IMCI	Integrated Management of Childhood Illnesses
INCLEN	International Clinical Epidemiology Network
INRUD	International Network for the Rational Use of Drugs
IUATLD	International Union Against Tuberculosis and Lung Disease
JE	Japanese Encephalitis
JHU	Johns Hopkins University
JICA	Japan International Cooperation Agency
MDR	Multi-Drug Resistant
NAMRU-2	U.S. Naval Medical Research Unit 2 (Jakarta)
NAMRU-3	U.S. Naval Medical Research Unit 3 (Cairo)
NGO	Non-Governmental Organization
NIH	U.S. National Institutes of Health
PATH	Program for Appropriate Technologies in Health
PSI	Population Services International
RPM	Rational Pharmaceutical Management Project (USAID)
SAIDNET	South Asia Infectious Disease Network
SEAR	South-East Asia Region of WHO
STI	Sexually Transmitted Infections
TB	Tuberculosis
UAB	University of Alabama-Birmingham
USAID	U.S. Agency for International Development
VBDRTC	Vector-Borne Diseases Research and Training Center (Nepal)
WHO	World Health Organization
WPR	Western Pacific Region of WHO

Executive Summary

This document presents the Asia and the Near East Bureau's new Strategic Objective (SO) 18: *Increased Use of Effective Responses to Select Infectious Diseases in Asia and the Near East*. SO 18 expands upon and replaces the SO 8: *Increased use of Effective Responses to the HIV/AIDS Pandemic in Asia and the Near East*. The new SO will include both HIV/AIDS and infectious diseases since regional strategies for improving disease and behavior surveillance, strengthening health services, and developing/expanding new interventions are similar.

This SO29 authorizes a seven-year ANE Regional HIV/AIDS and Infectious Disease Program (FY 2000 to FY 2006). The program will use existing Global Bureau contracts through the Field Support mechanism and is designed to support and supplement individual USAID Mission and Global Bureau programs, from an ANE regional perspective.

Section 1 presents background information on infectious diseases, including HIV/AIDS, worldwide. Section 2 provides the strategic justification and program design for responding to infectious diseases in the ANE Bureau. Sections 3 and 4 describe the strategic framework and the Regional Program, respectively.

Section 1: Introduction

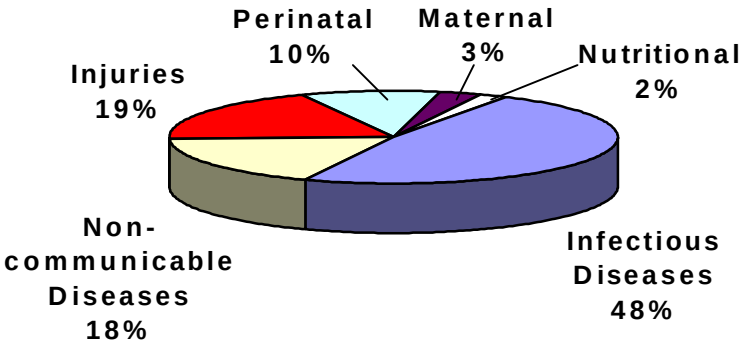
Improvements in human health between 1955 and 1998 have resulted in a worldwide increase in the average life expectancy from 48 to 68 years. Much of this gain is credited to better control of infectious diseases through water and sanitation programs, diminished overcrowding and malnutrition, and utilization of vaccines and antimicrobial drugs. Recent successes include: the eradication of small pox; a drastic reduction in the number of cases of polio, leprosy, and guinea worm; and the development and application of simple, case-management approaches for the deadliest childhood diseases, such as acute lower respiratory infections (ALRI), diarrheal disease (DD), and malaria.

Despite this progress, however, infectious diseases remain a significant cause of mortality worldwide. In people 0-44 years of age, infectious diseases account for nearly half of all deaths (see Figure 1); the number is even higher (63%) in children ages 0-4. The impact is far more pronounced in developing countries where 43% of all deaths are due to infectious diseases, compared with only 1% in developed nations[1]. The devastating impact of infectious diseases can be seen in southern Africa where life expectancy--after increasing from 44 to 59 years between the late 1950s and the early 1990s--has begun to decrease because of the HIV/AIDS epidemic and is expected to drop to 45 years between 2005 and 2010. As a result, the gains of development over the last 20 years are being lost as people in their most productive years (18-49) die due to the pandemic[2].

Of the more than 13 million deaths due to infectious diseases in 1998, 78% were caused by ALRI, HIV/AIDS, DD, tuberculosis (TB), malaria, and measles (see Appendix 1 for additional information). Interventions to prevent infection and limit the numbers of deaths from these diseases include vaccines for Hib pneumonia and measles, insecticide-impregnated materials such as bednets, oral rehydration

1. World Health Organization, *1998 World Health Report*.
2. UNAIDS, *AIDS Epidemic Update: December 1999*, p. 5.

Figure 1: Leading Causes of Deaths Worldwide Among People Aged 0-44 (1998 Estimates)[3].



solution (ORS), and case-management strategies using inexpensive and effective antimicrobial drugs. Unfortunately, microbes causing ALRI, sexually transmitted infections (STIs), HIV, DD, TB, malaria, and other diseases have demonstrated the ability to develop some degree of resistance to commonly used antimicrobial drugs. As a result, the decreasing effectiveness of these drugs has contributed to persistent infections, higher mortality, and increased health expenditures.

In developing countries, prevention, treatment, and control of infectious diseases is especially challenging because the success of interventions is dependent on many factors, including: the economic and social status of women; the quality of public health systems and the availability of services such as immunization programs; malnutrition and its effect on increasing susceptibility to infections; environmental changes and land development; availability of clean water and adequate sanitation; effectiveness of antimicrobial drugs; population growth and crowding; access to voluntary testing, counseling and treatment facilities for STIs and HIV/AIDS; stigma and/or discrimination against people with infections such as TB and HIV; and movement of people because of trade, travel, trafficking, migration, disasters, and conflict (see Appendix 2).

The inability to successfully prevent, treat, and control infectious diseases contributes to their persistence and spread, resulting in more opportunities for people to become ill, both in developing and developed countries. Due to their social and economic circumstances, poor people, women, children, and migrants in the ANE region are especially vulnerable to infectious diseases. Additional money needed to cover increased health expenditures at the household and facility levels leaves fewer resources available for non-health spending. Recent experience has demonstrated that disease epidemics such as cholera and plague can also have severe economic consequences at the national level by disrupting foreign trade and tourism.

3. World Health Organization, *Report on Infectious Diseases: Removing Obstacles to Healthy Development*, 1999, p. 5.

Section 2: Strategic Planning and Program Design

The following section describes the nature of the infectious disease problem in Asia and the Near East as well as the design of the new HIV/AIDS and Infectious Disease Program. (The structure and objectives of the program are described in *Section 3*.)

Infectious Diseases in Asia and Near East.

Of the 5.8 million deaths due to infectious diseases in the Asia and Near East (ANE) region in 1998, 84% were caused by ALRI, DD, TB, measles, HIV/AIDS/STIs, and malaria (see Table 1). However, these diseases are not evenly distributed across the ANE region. While ALRI, DD, and measles are problematic throughout the ANE region, others diseases are serious health concerns only within sub-regions. For example, the burden of TB, HIV/AIDS, and malaria is considerably higher in South and Southeast Asia than in the Middle East. In a few cases, diseases are relatively localized, but intense. Some of the highest hepatitis C prevalence rates in the world are in Egypt (18%), Mongolia (11%), Vietnam (6%), and Thailand (6%).

Table 1. Burden of Infectious Diseases in Asia and the Near East, 1998[4]

Rank	Disease[5]	Asia and Near East Region	
		Deaths, 000 (% of Global Total)	DALYS[6], 000 (% of Global Total)
1	Acute Lower Respiratory Infections (v)	1,763 (51%)	44,750 (54%)
2	Diarrheal Diseases	1,248 (56%)	40,294 (55%)
3	Tuberculosis	917 (61%)	16,743 (59%)
4	EPI Diseases (v)	818 (50%)	27,935 (49%)
5	HIV/AIDS	332 (15%)	13,407 (19%)
6	Malaria	146 (13%)	4,627 (12%)
7	STIs (not HIV/AIDS)	99 (55%)	9,604 (56%)
8	Meningitis (v)	68 (48%)	2,270 (48%)
9	Hepatitis (v)	41 (45%)	761 (45%)
10	Tropical diseases	39 (37%)	4,401 (40%)
11	AURI/Otitis media	31 (57%)	1,401 (51%)
12	Dengue	14 (93%)	520 (93%)
13	Intestinal worms	8 (47%)	2,138 (50%)
14	Japanese encephalitis (v)	2 (50%)	183 (36%)
15	Leprosy	1 (50%)	295 (75%)
16	Trachoma	0 (------)	328 (26%)
	Other ID	281 (59%)	8,621 (61%)
	ANE TOTALS (% GLOBAL TOTAL)	5,808 (44%)	178,278 (44%)

4. ANE = sum of EMR+SEAR+WPR (not including China). See legend to Appendix 1 for more information.

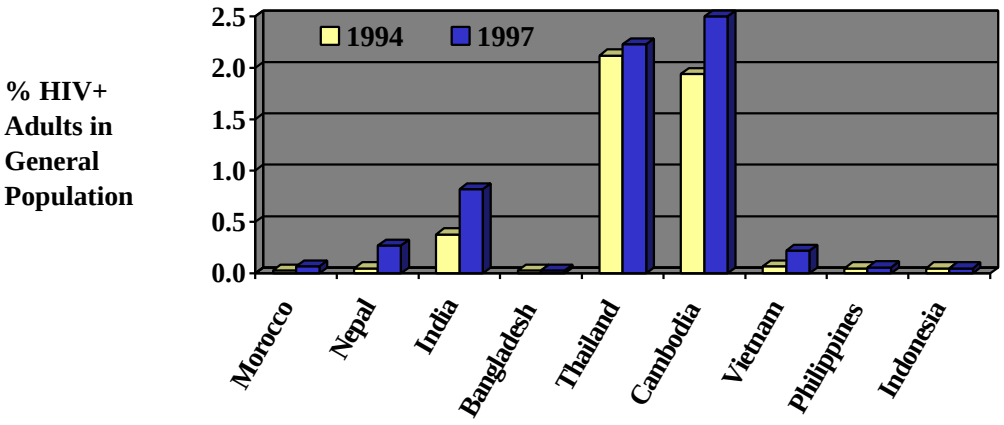
5. (v) = vaccine exists that can prevent some forms of these diseases. EPI Diseases (818,000 deaths in the ANE region) include: measles (373,000); tetanus (269,000); pertussis (172,000); diphtheria (3,000); and polio (1000). STIs (99,000 deaths in the ANE region) include: syphilis (86,000); chlamydia (8,000); gonorrhea (4,000); and others (<1000). Tropical Diseases (39,000 deaths in the ANE region) include: leishmaniasis (33,000); trypanosomiasis (3,000); schistosomiasis (1,000); Chagas (<1000); onchocerciasis (<1000); and lymphatic filariasis (<1000).

6. One DALY (Disability Adjusted Life Year) = one year of healthy life lost due to premature death or disability.

Currently, ALRI, DD, and measles--and to some extent malaria--are already being addressed by child health programs in the ANE region. HIV/AIDS, TB, and malaria (and other vector-borne diseases) have received less attention, but these diseases have the potential to increase in incidence or severity because of lack of resources and political commitment, weak health systems, changes in environmental conditions, and the emergence of drug resistance. Additional details are provided below.

HIV/AIDS and STIs. While the majority of current HIV infections are in Africa, an increasing proportion of the world's new HIV/AIDS cases are expected to occur in Asia[7]. In 1998, there were 6.7 million HIV+ people in the ANE region and the epidemic in Asia has become extremely diverse. Some countries like Mongolia and West Bank/Gaza have fewer than 100 total cases. Others such as the Philippines and Indonesia have experienced continued, low prevalence rates of about 0.1% in the general population while Thailand and Cambodia have rates near 2.5% (see Figure 2). India has the greatest number of infected people of any single country in the region--more than 3.5 million--with the epidemic concentrated in a few states in the northeast and south. Factors that fuel HIV infection in Asian countries with the highest prevalence rates are: the low social status of women and girls, resulting in trafficking and limited economic opportunities; brothel-based sex work; large proportion of men going to sex workers; migration; intravenous drug use (IVDU) and sharing of needles, and; high prevalence of sexually transmitted infections.

Figure 2. HIV/AIDS in Selected Countries in Asia and the Near East.[8]



Like other infectious diseases, HIV does not respect national boundaries and efforts to contain the disease have been slow to develop because of limited political will and difficulties in changing human behavior. Currently there are no vaccines available and no drug can yet cure the infection. Medications are available to lower a person's viral load, thereby slowing the progression to AIDS, but the person can still infect others. These drugs, however, are so costly that they are virtually unobtainable to the vast majority of those infected throughout the ANE region. In addition, people who are dually infected with

7. *World Population Profile:* 1998*;* USAID and US Department of Commerce.
8. Source: WHO/GPA (1994); "Report on the Global HIV/AIDS Epidemic, UNAIDS (1998).

HIV and TB are more likely to develop active TB disease; a person with active TB can infect 10 to 15 other people over the course of a year. A similar situation exists for people with leishmaniasis: HIV infection increases the risk of developing the severe form of the disease (visceral leishmaniasis, also known as kala-azar).

Tuberculosis. In 1998, 5.5 million cases of TB disease and almost 1.2 million deaths were reported for countries in Asia and the Near East (including China), accounting for about 75% and 79%, respectively, of the global totals. The incidence of disease was highest in South and Southeast Asia (2,940,000 cases), followed by the Western Pacific region (1,975,000 cases) and the Eastern Mediterranean region (607,000 cases)[9]. Eleven of the 22 countries with the highest TB burden in the world are located in Asia and the Pacific and include five USAID-presence countries (see Table 2). Unless it is addressed immediately, the TB problem in Asia will likely worsen because: (1) several of the countries shown in Table 2 have experienced a limited spread of HIV/AIDS from high-risk groups to the general population; and (2) improper treatment with anti-TB drugs has led to multi-drug resistant (MDR) TB in the region (see Table 3).

Table 2. Tuberculosis Burden in Asia by Country, 1997[10].

World Rank	Country	Total Estimated TB Cases	% Global Burden	TB Disease Incidence[11]	HIV/AIDS Prevalence[12]
1	India	1,799,000	23	187	0.8%
2	China	1,402,000	18	113	<0.1%
3	Indonesia	583,000	7	285	<0.1%
4	Bangladesh	300,000	4	246	<0.1%
5	Pakistan	261,000	3	181	0.6%
7	Philippines	219,000	3	310	<0.1%
10	Russia	156,000	2	106	<0.1%
11	Vietnam	145,000	2	189	0.2%
16	Thailand	84,000	1	142	2.2%
17	Burma	80,000	1	171	1.5%
22	Cambodia	57,000	1	539	2.5%
	TOTAL	5,086,000	65%		

A successful and cost-effective treatment exists for TB and, if properly used, can cure the disease (even in people who are HIV+) and limit the development of drug resistance. Delivery of DOTS (Directly Observed Treatment, Short-course) requires national commitment, proper equipment and training, an uninterrupted supply of anti-TB drugs, direct observation of treatment, and continuous monitoring and evaluation. Presently, national programs have not expanded to reach the large number of people in need. For example, only 18, 16, and 57% of TB patients in the EMR, SEAR, and WPR regions, respectively, have access to DOTS treatment.

9. WHO *World Health Report*, 1999.
10. WHO *Global Tuberculosis Control Report*, 1999.
11. Incidence rate per 100,000 population.
12. HIV-1 and HIV-2 seroprevalence in pregnant women. Source: various studies (see U.S. Census Bureau website).

Malaria and Other Diseases. While most of the malaria worldwide occurs in sub-Saharan Africa, the disease continues to be a persistent problem in Asia and the Near East. In 1998, the total number of reported malaria cases was 33,235,000 (SEAR = 15,791,000; EMR = 13,693,000; WPR = 3,751,000), accounting for 12% of the global total; the 146,000 total deaths accounted for 13% of those due to malaria worldwide[13]. Most of the cases are caused by either *P. falciparum*, the more-deadly malarial parasite, or *P. vivax*. Recently, this disease has become even more lethal in Southeast Asia with the emergence of multi-drug resistant (MDR) forms of falciparum malaria in western Cambodia during the 1980s and its subsequent spread to eastern Burma and Thailand. Currently, *P. falciparum* parasites in parts of Southeast Asia are completely resistant to chloroquine and fansidar and 45% resistant to quinine and mefloquine (see Table 3). In some situations (i.e. in refugees returning to Cambodia from eastern Thailand and Burmese refugees living in western Thailand), spread of MDR malaria has been successfully controlled. At the moment, MDR malaria in Southeast Asia is relatively confined, but several factors are threatening to expand its range: high levels of migration in the area; the potential economic development of western Cambodia; and the Asian financial crisis and its negative impact on health systems (i.e. capacity to monitor diseases and provide health care, especially to those most in need).

The incidence of dengue hemorrhagic fever (DHF) is higher in Asia than anywhere else--with cases reported in Cambodia, India, the Philippines, Thailand, Vietnam, and elsewhere; most of the deaths worldwide also occur in Asia (see Table 2). Since case reporting is often based on non-specific symptoms without serological confirmation, perceived "epidemics" in urban areas can result in large expenditures for unneeded treatment and vector-control activities. Japanese encephalitis (JE), the leading cause of viral encephalitis in Asia, occurs sporadically and in epidemics in East, South and Southeast Asia (including northern and eastern India, Bangladesh, and Nepal), and parts of the Western Pacific. Good surveillance data are needed since the JE vaccine is only recommended for those at high risk and countries may only be able to afford limited quantities of vaccine. Ninety percent of new cases of visceral leishmaniasis occur in five countries including Bangladesh, India, and Nepal and drug resistance to the first-line drug is increasing. Since the disease is usually fatal if not treated, local information on where visceral leishmaniasis is present and the effectiveness of antimicrobial drugs is essential for timely treatment at the district level.

Based on limited data it appears that viral hepatitis--especially types B and C that can also lead to liver disease and cancer--is also problematic in the ANE region. Case reporting is usually based on symptoms and often does not distinguish between the (at-least) five types of virus that can cause hepatitis. Such information is essential for selecting the appropriate treatment or intervention to prevent the spread of the disease, such as the effective hepatitis B vaccine. The only current method of preventing hepatitis C infection in hospital/medical settings is observing universal precautions for blood and body fluids including blood screening. Improved surveillance and exchange of data among countries would greatly assist prevention efforts.

Environmental alterations such as development projects and global climate change have the potential to create new breeding sites for insects and other vectors, contributing to increases in malaria, dengue, JE, leishmaniasis, and schistosomiasis.

Surveillance and Drug Resistance. Decision makers--such as local governments and communities, USAID Missions, and other donors--need to have good-quality information on infectious (and

13. WHO *World Health Report*, 1999.

other) diseases in order to determine how and where limited health resources should be targeted. However, disease prevention and control efforts in the ANE region are often limited because good quality data are not available for strategic planning. For example, data are often not routinely collected, are available only from short-term research studies, or only apply to certain segments of the population. Another problem is that data are not always analyzed and linked to disease-control actions (locally, nationally, or regionally) in a timely manner.

Systematic surveillance is crucial in order to get a more accurate assessment of the prevalence of infectious diseases (e.g. HIV/AIDS and STIs) which are often under-reported. In many countries, people with STIs or malaria self-medicate or visit private practitioners who do not notify public health authorities. Accurate estimations of HIV/AIDS prevalence rates are problematic due to the long asymptomatic period experienced by most infected people. Since few testing facilities exist in most countries, a large proportion of the infected people are unaware of their HIV status. Sentinel surveillance for HIV, among both high- and low-risk groups, in STI clinics or antenatal care clinics, for example, is essential for understanding the dynamics of the infection and the effect of prevention interventions.

The continued widespread and irrational use of antimicrobial drugs in the ANE region is expected to further erode the effectiveness of antimicrobial drugs use to treat infectious diseases. Most of the currently-available data on drug resistance (an illustrative list is shown in Table 3) are derived from hospital-based surveillance because of the presence of laboratory-testing facilities, the availability of clinical samples, and the perception that these facilities generate more drug resistance than communities because of high levels of drug use. While less is known about AMR levels in the community, there are likely to be factors that contribute to the drug resistance problem in the ANE region (e.g. drug quality, regulation, dispensing, and patient compliance with recommended drug therapies). For example, antimicrobial drugs of unknown quality are often imported from neighboring countries and available without a prescription at local distributors. In addition, some people obtain medicines or treatment in other countries if their jobs take them there or if service are perceived to be less expensive or of better quality.

While most of these AMR data in Table 3 are based on laboratory tests and do not directly reflect clinical treatment failures, the trend is worrisome because it indicates that disease-causing microbes are gradually becoming less sensitive to first-line drugs. While second- and third-line drugs or combination therapies are often available, their increased cost can limit access to these vital medicines and decrease compliance with specific treatment regimens. In some cases, disease-causing microbes (i.e. malaria parasites in Southeast Asia) have already become resistant to many of the back-up drugs as well.

In addition to drug-use practices, information on other behaviors that contribute to the spread of disease is critical for improving health programs. For example, behavioral surveillance is needed to: determine if the prevalence of risk behaviors is changing; identify unsafe practices; monitor usage of preventative products, track migration patterns, and determine if care-seeking behaviors are appropriate.

Table 3. Reported Drug Resistance in Asia.

Disease	Illustrative Organism	Antimicrobial Drug	Resistance Level[14]	Location
ALRI and Meningitis	*Streptococcus pneumoniae*	Penicillin	0-84% (L)	Asia and Pacific
		Tetracycline	12-94% (L)	Asia and Pacific
Diarrheal Disease	*Salmonella typhi*	Ampicillin	0-87% (L)	Asia and Pacific
		Chloramphenicol	0-91% (L)	Asia and Pacific
Sexually-Transmitted Infections	*Neisseria gonorrheae*	Penicillin	3-98% (L)	Asia and Pacific
		Quinolones	0-69% (L)	Asia and Pacific
Leishmaniasis	*Leishmania* sp.	First-line drug	>60% (CTF)	Foci in India
Malaria	*Plasmodium falciparum*	Chloroquine	Up to 100%[15]	Foci in SE Asia
		S/P	Up to 100% (CTF)	Foci in SE Asia
		Mefloquine	45% (CTF)	Foci in SE Asia
		Quinine	45% (CTF)	Foci in SE Asia
Tuberculosis	*Mycobacterium tuberculosis*	Isoniazid	29% (L)	India (Delhi state)
		Rifampicin	14% (L)	India (Delhi state)

According to the World Health Organization, effective prevention, treatment, and control of infectious diseases in the ANE region and elsewhere requires: additional training of local staff to strengthen skills necessary for routine collection and analysis of health data, and patient counseling and education; dissemination of public health recommendations and guidelines; and delivery of health services to people who are most in need[16]. Health officials must also have the necessary mechanisms and national support for sharing information with neighboring countries in order to more effectively coordinate infectious disease prevention and control programs in the ANE region where opportunities exist.

Overview of Existing USAID HIV/AIDS and Infectious Disease Activities.

Through its overall development efforts, USAID has worked to address the underlying social and economic conditions--such as poverty, malnutrition, illiteracy, lack of sanitation, overcrowding, the low social status of women and girls, and environmental degradation--that allow infectious diseases to flourish and spread. Through its health sector efforts, USAID has supported the strengthening of health systems so that developing and transitional countries themselves can better prevent, treat, and control infectious diseases. At the same time, USAID's Maternal Health and Child Survival interventions have targeted specific populations and diseases.

In order to more directly address infectious diseases that pose serious threats to developing countries, USAID began investing in the mid to late 1980s in activities to prevent the spread of HIV/AIDS by improving and strengthening epidemiological surveillance systems and promoting the diagnosis and appropriate treatment of STIs, condom usage, behavior change, and educational interventions in developing countries. Recognizing that the HIVAIDS epidemic was not confined by international boundaries and was outside the mandate of governments, USAID Missions, and other donors, the Asia and Near East Bureau initiated a regional HIV/AIDS program in 1993 to

14. Data from: WHO/WPR (1995-1997); ANSORP (Asian Network for Surveillance of Resistant Pathogens Study, 1999); WHO/IUATLD Global Project on Anti-TB Drug Resistance Surveillance, 1997; and WHO/WPR Gonococcal Antimicrobial Surveillance Program, 1997. L = laboratory-based data. CTF = clinical treatment failure data.

15. Resistance assumed to be 100% since monitoring of treatment failures (for chloroquine) is no longer conducted in some parts of Southeast Asia.

16. *Report on Infectious Diseases: Removing Obstacles to Healthy Development*, World Health Organization,1999.

support fundamental HIV/AIDS and STI prevention activities--HIV/AIDS education, condom promotion and STI treatment.

The Program currently supports activities that contribute to the coordination of HIV/AIDS prevention in borders areas of South Asia (India, Nepal, and Bangladesh) and Southeast Asia (Thailand, Cambodia, Laos, and Vietnam), including: increasing the number of cross-border HIV/AIDS prevention and STI treatment programs to limit cross border HIV/AIDS infections; increasing the capacity of local governments or non-governmental organizations (NGOs) to undertake behavioral and epidemiological surveillance and to use that information in policy and program development; increasing the number of ANE-assisted implementing partners adopting new models or HIV/AIDS services; strengthening the capacity of communities and NGOs to provide HIV/AIDS prevention, care, and support services; and supporting regional training and research efforts.

Additional resources became available in 1998 for a USAID Infectious Disease Initiative to focus on improving the prevention, treatment, and control of tuberculosis and malaria (and other diseases) while simultaneously strengthening surveillance systems and the ability to monitor and respond to antimicrobial drug resistance (see Appendix 3 for additional details and a list of partners).

Justification for a Regional HIV/AIDS and Infectious Disease Program.

Country-level improvements in the prevention, treatment, and control of HIV/AIDS and other infectious disease are currently being supported by Mission programs. These efforts include operations research, training, strengthening of information systems and institutional capacity, community outreach and education, and updating of guidelines and policies. Since the success of country-level programs is dependent on the availability of effective tools, the Global Bureau is investing in: development of new interventions, guidelines, and case-management strategies; operations research to better deliver/apply health interventions; health system strengthening (including human capacity and systems for collecting, analyzing, and using data); and development of global strategies for addressing TB and antimicrobial resistance.

A critical area not being addressed by USAID Global Bureau or mission activities involves linkages among countries. For example, country-level activities supported by Missions (i.e. data collection and disease-control responses) typically do not extend beyond national borders even if infectious diseases affect people in adjacent nations. This gap is significant since humans (i.e. migrants or trafficked individuals) and vectors such as mosquitoes can be infected in one country and then spread the disease in neighboring countries. A regional program can develop and strengthen these linkages while also providing the flexibility to work in non-presence countries when appropriate, as has been the case for HIV/AIDS prevention in Vietnam and Laos. The joint Regional HIV/AIDS and ID Program complements mission HIV/AIDS and ID programs in ANE countries as well as USAID's maternal and child health investments in the region.

The expansion of the existing ANE Regional HIV/AIDS Program to also include other ID activities takes advantage of the existing strategic and programmatic overlaps. For example, prevention and control of both HIV/AIDS and ID require improved surveillance (including migration patterns), behavior change, and education. Since interventions in these areas will address the same groups (i.e. policy makers, health personnel, patients, care-givers), there will be opportunities to deliver HIV/AIDS and ID interventions simultaneously. This synergy is critical since some diseases contribute to the

spread of other diseases within the same population; for example, STIs (especially those that persist because of drug resistance) can facilitate the transmission of HIV/AIDS, which, in turn, can contribute to the spread of TB. All three diseases primarily affect the segment of the population (15-45 years) that is the most economically productive. One existing ID activity--funded by the Regional Development and Support Program of the ANE Bureau--is taking advantage of these synergies by using an existing HIV/AIDS care and support network in Cambodia to improve the detection and treatment of active TB cases.

Comparative Advantage of USAID and the ANE Bureau

USAID has a long history of working with developing countries in the Asia and Near East region and has established partnerships with local public health officials, host-country institutions and professionals, other donors, and implementing organizations. USAID participates in the development of health strategies and policy; supports research, training, and other capacity building activities as part of its overall development efforts; and provides technical assistance to host countries and local non-governmental organizations (NGOs). Past USAID support has led to the development and application of new interventions (e.g. oral rehydration solution, vitamin A) and wide-spread social marketing for condoms that now play an critical role in addressing infectious diseases--including HIV/AIDS--in the ANE region and elsewhere.

Through its Regional HIV/AIDS Program, the ANE Bureau has strengthened its interactions with USAID missions, donors, and implementing partners in the ANE region. Experience with the previous program will be directly applicable to the new HIV/AIDS and ID Regional Program. For example, disease prevention and control efforts must be started early in an epidemic in order to limit the spread of infectious diseases. In addition, it has been shown that knowledge itself is necessary, but not sufficient, for lessening the impact of a disease; changes in behaviors and cultural norms are also needed. Another lesson learned is that behaviors can be changed, but adequate time and commodities (e.g. condoms or insecticide-treated bednets) are required for adopting and maintaining new behaviors. Finally, "quick fixes" targeted at a single age cohort are not enough; sustained efforts are needed to reach future generations as well.

In developing the Regional HIV/AIDS and ID Program, the ANE Bureau solicited input from USAID missions in the ANE region in order to ensure that the program was useful in addressed critical needs.

Strategic Choices

The ANE Regional HIV/AIDS and ID Program will support the development of innovative models and complement existing health programs and other development efforts in USAID-presence and non-presence countries. Support for sharing of information among institutions and monitoring of regional trends, including infectious-disease and antimicrobial-resistance levels, will improve the ability of individual countries to: 1) use this data to respond to infectious disease problems (both routine and epidemic); 2) judiciously target limited national resources to priority problems, and; 3) improve cooperation with neighboring countries.

Geographic Priorities. Regional HIV/AIDS and ID activities will focus on geographic areas where:

- incidence rates and burden of priority diseases are high;
- health systems have some existing capacity to deliver services and conduct surveillance;

- mobile populations contribute to the spread of disease; and
- regional or sub-regional activities are able to support or complement country-level infectious disease activities, including those funded by missions[17].

Based on these criteria, the primary focus of the ANE HIV/AIDS and ID Regional Program will be South and Southeast Asia where there are several USAID-presence countries and existing regional infectious disease activities. If adequate funding levels are available, the ANE Regional Program will be expanded to include other countries in Asia (e.g. Indonesia, Philippines) and the Near East. Activities will be either conducted in specific countries (e.g. model development/testing or strengthening of a limited number of key institutions) or as part of multi-country efforts (e.g. disease prevention, treatment, and control) targeting vulnerable and/or mobile populations that are not usually a focus of USAID bilateral programs.

Disease Priorities. Diseases to be covered by the ANE Regional HIV/AIDS and ID Program were selected using the following criteria:

- significant threat to public health--either short term (mortality) or long term (DALYs);
- prevention, treatment, or control possible using existing technologies/interventions;
- potential sustainability of disease-specific interventions;
- prevention, treatment, and control activities hampered by migration and cross-border epidemics;
- effectiveness of case management limited by drug resistance;
- additional resources (beyond those already provided by partners) needed; and
- national government and USAID interest.

Diseases meeting these conditions include HIV/AIDS, STIs, TB, malaria, and other diseases for which antimicrobial resistance is especially problematic (e.g. ALRI, DD, and visceral leishmaniasis). These diseases are among the major health problems in the ANE region (see Table 1) and are either not currently being targeted by other programs (e.g. ALRI and DD case management, IMCI, immunization) or need additional support. Due to the burden of disease, the initial focus will be TB and HIV/AIDS, with a smaller amount of funding supporting the monitoring of drug resistance and certain diseases such as malaria, JE, visceral leishmaniasis, and dengue since the prevalence data for these diseases is weak or lacking in many countries in South and Southeast Asia. In addition, resources may also be provided for monitoring blood-borne pathogens (e.g. HIV/AIDS, hepatitis B and C) and conducting operations research to improve interventions that can be used at the regional or sub-regional level to limit their spread.

Since polio and implementation of standard treatments for ALRI and DD are already being addressed by USAID's Child Survival programs, they will not be covered by the ANE Regional HIV/AIDS and ID Program. However, linkages to these programs will be made where overlaps exist; for example, drug resistance and case management.

17. Countries that do not have a USAID presence may be included as part of multi-country activities.

Section 3: Strategic Framework

In support of the USAID goal of "World Population Stabilized and Human Health Protected," the ANE Bureau is addressing the problem of infectious diseases through the "Increased Use of Effective Responses to Select Infectious Diseases[18]." This approach includes: improving surveillance and information dissemination; increasing the availability of ID services; increasing the number of ID interventions; and strengthening the expansion of ID interventions (see Figure 3 for the strategic framework). The success of this approach in achieving the four Intermediate Results (IRs) will be determined based on project reporting from the implementing partners.

Section 4: The ANE Regional HIV/AIDS and Infectious Disease Program

The ANE Regional HIV/AIDS and ID Program is a multi-year effort to achieve the objective of SO29 (see Figure 3). The new program (FY00-06) supercedes the existing ANE Regional HIV/AIDS Program and provides funding for both HIV/AIDS and ID activities. The two areas of focus in the region are strengthening surveillance systems and improving the capacity of ANE countries to respond to infectious diseases. A key component of this approach is developing new, effective interventions and assisting in expanding their use.

Surveillance of Infectious Diseases. The ANE Regional HIV/AIDS and ID Program will provide support for new and on-going efforts to improve the collection, use, and dissemination of information related to infectious diseases, drug resistance, and behaviors contributing to their spread. Surveillance activities will contribute to achieving IR29.1.

Support will be provided for training (using national or regional institutions where possible), strengthening laboratory capacity (particularly for AMR monitoring and STI diagnosis) and surveillance/response systems, and operations research to improve sharing of data (disease, behavioral, and AMR) and monitoring of regional trends[19]. Dissemination of information will take place through national networks and linkages made among regional institutions. Host governments and other donor agencies will be contacted during the design of individual activities in order to ensure that necessary commodities such as equipment and laboratory reagents will be available.

Activities will focus on:

1. Improving the quality of surveillance (for diseases, AMR, behavior) data collected and disseminated in the ANE region. Current surveillance practices and case definitions (including those related to treatment failures) will be reviewed and standardized protocols will be developed for identifying and reporting cases of priority diseases. Use of this information to monitor disease trends and respond to health problems at the local, national, and regional level will be promoted.
2. Establishing/strengthening informational linkages among select health facilities and laboratories in the ANE region. Information exchange and dissemination will include high-quality, representative, and standardized data on infectious diseases, drug resistance, and behaviors contributing to their spread.

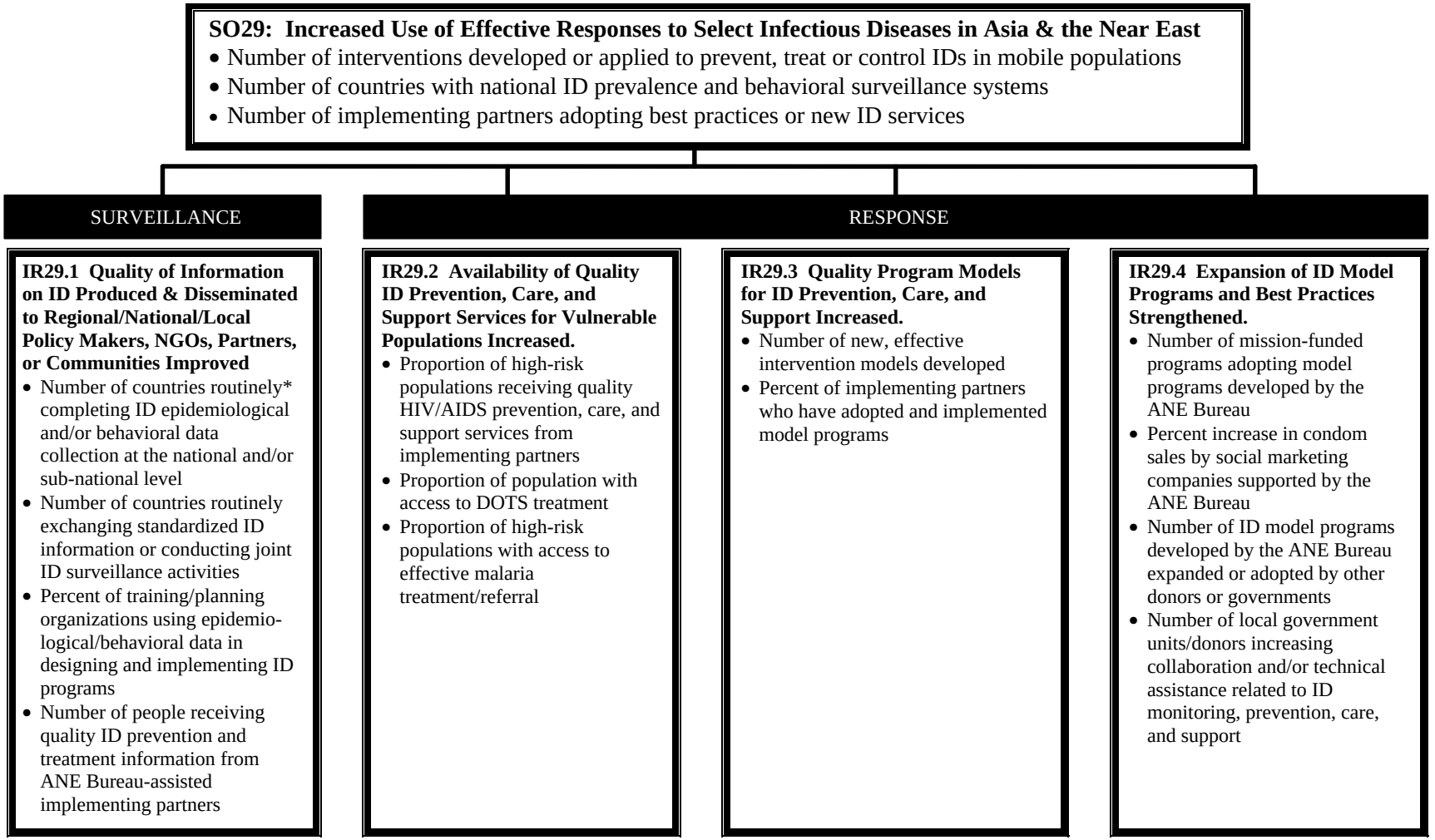
18. In sections 3 and 4, "infectious diseases" and "ID" includes HIV/AIDS.
19. This information would be useful in identifying problems that affect mobile populations or people in border.

3. Training of health staff. Health officials in selected facilities, laboratories, and Ministries of Health will be trained to strengthen standardized data collection, analysis, and reporting.
4. Multi-country surveillance projects. Surveillance and disease-prevalence mapping of HIV/AIDS and vector-borne diseases (such as malaria, JE, visceral leishmaniasis, and dengue) will be expanded in South and Southeast Asia. In addition, analyses of drug-use practices in communities (especially those near national borders) will be expanded in South and Southeast Asia in order to design behavior change interventions. A plan for disseminating results to policy makers will be built into each project.

Response to Infectious Diseases. The Regional HIV/AIDS and ID Program will strengthen prevention (including health education), care, and support activities in presence and non-presence countries that are targeted at individuals affected by the priority diseases. These people include truck drivers, seafarers, migrant workers and intravenous drug users who are not being reached by bilateral projects. The response activities will contribute to achieving IR29.2, IR29.3, and IR29.4.

The Regional Program will provide support for training (using national or regional institutions where possible), strengthening of case detection and treatment, and operations research to improve the delivery and use of effective treatments and prevention tools (i.e. DOTS, condoms, bednets). Host governments and other donor agencies will be contacted during the design of individual activities in order to ensure that necessary commodities such as antimicrobial drugs, diagnostics, and laboratory reagents and equipment will be available. Where possible, linkages will be established with regional and global initiatives (e.g. Stop TB and Roll Back Malaria) and other health programs already being supported by USAID (e.g. maternal, reproductive, and child health).

Figure 3. Strategic Framework.



* Depending on the type of data being collected and how often changes are expected, the definition of "routine" may vary. For example, if data are being collected for the first time, sampling may be conducted once every six or twelve months in order to determine the rate of change. For data that have already been shown to change slowly, surveys every one or two years may be sufficient for monitoring disease prevalence (and drug resistance) and behavior change, respectively.

Activities will focus on:

1. Formative research. Information is needed to understand patterns of high-risk behaviors and how best to do outreach and program development for marginalized groups, such as the poor, migrants, intravenous drug users, and men who have sex with men. Research will also be conducted to identify reasons why effective treatments and prevention tools are not reaching those in need and why patients are not completing therapy. In addition, new mechanisms for reaching and treating patients--such as outreach to mobile populations and using members of the community to deliver services--may be developed, tested, and, if successful, implemented in other countries in the ANE region. A plan for disseminating results to policy makers will be built into each activity.
2. Disease awareness and education. Target audiences include not only high-risk populations, but also public and private organizations that provide services and outreach to these communities. NGOs providing outreach and services to migrant populations will receive technical assistance to produce, test and disseminate simple pamphlets, booklets, and other educational materials related to care seeking, treatment practices, and use of prevention methods (e.g. condoms and bednets).
3. Training of health care staff. Key individuals include doctors, nurses, drug dispensers, and other health providers serving vulnerable populations. Skills strengthening would include appropriate diagnosis and management of priority diseases using standardized regimens (e.g. DOTS for TB treatment).

Partners

The ANE Bureau will coordinate its HIV/AIDS and ID activities with other USAID regional bureaus and the Global Bureau where appropriate. Other partners for the ANE Regional HIV/AIDS and ID Program include organizations that support the strengthening of human and laboratory capacity to diagnose, monitor, and respond to infectious diseases, as well as the strengthening of public health systems and community groups to prevent, treat, and control infectious diseases. Candidates include: ACTMalaria; AFRIMS; APUA; CDC; EHP; FHI; ICDDR,B (Bangladesh); IHAA; INCLEN; INRUD; IUATLD; Mahidol University (Thailand); NAMRU-2 (Indonesia); NAMRU-3 (Egypt); NIH/Fogarty; PATH; Population Council; PSI; RPM; Tribhuvan University (Nepal); UAB; UNICEF; VBDRTC (Nepal); and WHO. In-country implementation of some activities will also require the participation of local NGOs, the private sector, and members of the community. The ANE Regional HIV/AIDS and ID Program will actively pursue collaborations with other donor organizations and existing networks in order to leverage resources, support program areas not currently being addressed, provide needed commodities such as drugs and laboratory reagents, and avoid duplication. Through this type of involvement, USAID recently contributed to a significant expansion of the national malaria program in Zambia by partnering with the Government of Zambia, JICA, UNICEF, and WHO; as part of the agreement, JICA is providing insecticide-treated bednets, antimalarial drugs, vehicles, and computers.

Several of the organizations listed above--and others--are currently planning or implementing HIV/AIDS and ID activities in the ANE region and several networks have been established to address health problems by linking research, training, and disease-control activities (see Appendix 4 for a partial list of regional ID organizations and networks). However, many of these activities and networks have funding constraints, address only specific diseases or problems, and are not linked to other related efforts.

Assumptions and Keys to Success.

Achieving the goals of the ANE Regional HIV/AIDS and ID Program will require a multi-year effort and close collaboration with USAID's local, international, and U.S. partners. The success of this program assumes that important complementary development issues such as malnutrition, population growth, environmental degradation, illiteracy, poverty reduction, and civil society will continue to be addressed through other programs. It is also assumed that USAID's investments in child survival, maternal and reproductive health, and health systems strengthening will continue to be a high priority.

More specifically, the following conditions must be met in order for the ANE Regional HIV/AIDS and ID Program to be successful:

- USAID mission and Global Bureau HIV/AIDS and ID activities are continued and adequately funded;
- health officials are able to collect routine, representative, and reliable data (including data on diseases, behaviors, and AMR);
- at least some microbiology and entomology laboratories in the region have access to appropriate staffing, reagents, supplies, protocols, equipment, and clinical samples;
- appropriate antimicrobial drugs are available to health systems for treatment programs;
- national/state/local governments permit the free exchange of health information across borders;
- national/state/local governments permit the coordination of intervention programs with neighboring countries; and
- the health of people in the region is not compromised by war or other regional conflicts.

Funding

The ANE Regional Program will provide funding, based on availability, for both HIV/AIDS and ID activities from FY00 to FY06; this is an extension of the previous ANE Regional HIV/AIDS Program that was originally approved through FY03. On-going regional HIV/AIDS activities will continue until FY03 and either be extended or replaced by new activities. A notional division of the ID resources over the lifetime of the program is: 40% surveillance + AMR; 30% TB; and 30% malaria and other diseases.

Since HIV/AIDS and ID funding sources and implementing partners are different, the HIV/AIDS and ID activities will be funded and tracked separately within the regional program. HIV/AIDS and ID funds from the ANE Bureau will be transferred to implementing organizations through existing mechanisms within the USAID Global Bureau.

Program Management

To achieve the desired results, the Regional Program will require appropriate management, coordination, and monitoring of activities being conducted by the implementing partners at various levels in both presence and non-presence countries. A key aspect of this will be making sure that interventions supported by the ANE Bureau complement activities being supported by USAID missions and other donors. In order to avoid creating new management and contractual layers, the regional program will work within the Global Bureau's existing network of implementing partners and associated field staff.

Table 5. FY00 HIV/AIDS and ID Activities.

Organization/ USAID Project	Activity Area	HIV	MAL	TB	SRV	AMR
Family Health Int'l	Surveillance, condom promotion, behavior change, policy formulation, media training	X			X	
Int'l HIV/AIDS Alliance	NGO development/support, model program development (HIV/AIDS care and support)	X			X	
Environmental Health Project	Multi-country surveillance activities (malaria and other diseases) in South Asia		X		X	X
New USAID/Global Surveillance Project	Strengthening country and regional disease surveillance/response systems				X	
Rational Pharmaceutical Management Project	Improving the use of antimicrobial drugs for treating malaria, TB and other diseases		X	X		X
World Health Organization	Monitoring and responding to MDR malaria In Cambodia; multi-country surveillance activities (malaria and other diseases) in South Asia; TB control activities in Southeast Asia		X	X	X	X

The overall coordination and oversight of the regional program will be the responsibility of the HIV/AIDS and ID Technical Advisors in the ANE Bureau (Office of Strategic and Economic Analysis/Division of Strategic Planning and Analysis). Specific duties for these staff will include: participating in activity design; approving proposals and work plans; monitoring and evaluating program objectives and strategies; and serving as a liaison with HIV/AIDS and ID staff in USAID missions, regional bureaus, and Global Bureau as well as other donor organizations and implementing partners. Management of activities in the field will be the responsibility of the implementing partners. For example, regional HIV/AIDS activities that are part of the IMPACT Project will continue to be managed from the FHI/Asia Regional Office (ARO) in Bangkok. Project CTOs in the Global Bureau will be responsible for overall management of the implementing partners.

To facilitate the management and coordination of activities at the start of the regional program, a coordination meeting will be held in Asia during the Fall of 2000. Participants will include relevant technical advisors from ANE, CTOs from the Global Bureau, USAID mission health staff, and representatives from implementing partners, other partners, and donors in the region. This meeting will serve as an opportunity to introduce the regional program (i.e. its objectives and reporting needs) to partners and exchange information related to on-going activities supported by the various participating organizations. Another meeting objective will be to begin developing a joint annual work plan for the various implementing partners in order to improve synergies between different programs and fill in gaps (e.g. lack of commodities such as drugs, bednets, condoms). The resulting work plan will be used to guide budget allocations for HIV/AIDS and ID in FY01. Each subsequent year, a meeting will be convened to develop the joint work plan for the following year; when possible, this event will be linked to other health-related meetings (e.g. ANE SOTA courses, infectious disease conferences) that will be attended by some of the partners. Since most of the activities will be taking place in either South Asia or Southeast Asia, the meetings will take place in these regions.

Appendix 1. Global Burden of Infectious Diseases, 1998[20]

		Deaths (000) by WHO Geographic Region[22]							DALYS[23] (000)
Rank	Disease[21]	AFR	AMR	EUR	EMR	SEAR	WPR	Global	Global
1	ALRI (v)	793	237	336	343	1,257	488	3,452	82,344
2	HIV/AIDS	1,830	99	16	16	298	26	2,285	70,930
3	Diarrheal disease	731	112	62	278	894	142	2,219	73,100
4	EPI diseases (v)	738	31	34	199	568	80	1,650	56,855
5	Tuberculosis	209	54	60	139	682	355	1,498	28,189
6	Malaria	961	4	0	53	73	20	1,110	39,267
7	STIs (not HIV/AIDS)	69	9	2	12	78	10	180	17,082
8	Meningitis (v)	21	13	10	12	50	38	143	4,725
9	Tropical diseases	49	18	1	6	32	2	106	10,984
10	Hepatitis (v)	13	5	6	8	28	33	92	1,700
11	AURI/Otitis media	13	2	3	5	23	7	54	2,741
12	Intestinal worms	2	2	0	1	6	6	17	4,279
13	Dengue	0	0	0	0	13	2	15	558
14	Japanese encephalitis (v)	0	0	0	0	2	2	3	503
15	Leprosy	0	1	0	0	1	0	2	395
16	Trachoma	0	0	0	0	0	0	0	1263
	Other ID	72	57	42	29	234	44	478	14,163
	TOTALS	5,501	644	572	1,101	4,239	1,255	13,305	409,078

20. WHO *World Health Report*, 1999. (v) = vaccine exists that can prevent some forms of these diseases.

21. EPI diseases (1,650,000 global deaths) include: measles (888,000); tetanus (410,000); pertussis (346,000); diphtheria (5,000); and polio (2,000). STIs (180,000 global deaths) include: syphilis (159,000); chlamydia (13,000); gonorrhea (8,000); and others (1,000). Tropical Diseases (106,000 global deaths) include: leishmaniasis (42,000); trypanosomiasis (40,000); Chagas (17,000); schistosomiasis (7,000); lymphatic filariasis (<1000); and ochocerciasis (<1000). Intestinal worms (17,000 global deaths) include: Ascaris (8,000); trichuriasis (5,000); hookworm (4,000); and others (<1000). (v) = some or all are vaccine preventable.

22. WHO regions: AFR = Africa minus the northeastern portion of the continent; AMR = North, Central, and South America; EUR = Europe and Eurasia; EMR = Eastern Mediterranean and northeast portion of Africa; SEAR = South Asia and part of Southeast Asia; WPR = Western Pacific and part of Southeast Asia.

23. One DALY (Disability Adjusted Life Year) = one year of healthy life lost due to premature death or disability.

Appendix 2. Factors Contributing to the Spread of Infectious Diseases.

	Malaria	TB	HIV/AIDS and STIs	Schisto-somiasis	Influenza	ARI	Diarrheal disease	Measles	Cholera	Yellow fever	Dengue
Deforestation											
Climate change											
Irrigation projects and dams											
Poor sanitation and hygiene											
Hunger and malnutrition											
Illiteracy											
Low status of women											
Lack of adequate housing											
Increased travel and migration											
Lack of multi-sector coordination											
Lack of surveillance system											
Unavailability of health services											
Lack of prevention tools or strategies											
Failure to use pre-vention strategies											
Lack of effective treatment											
Failure to use treatment strategies											
Lack of effective vaccine											
Failure to use vaccine											
Other factors		**Drug misuse**	**Religious factors**			**Air pollution**			**War, civil disorder**	**Urban-ization**	**Urban-ization**

Source: WHO *Report on Infectious Diseases: Removing Obstacles to Healthy Development*, 1999, p. 35.

Minor, indirect or no factor

Important factor

Very important factor

Appendix 3. Existing USAID ID Activities in Asia and the Near East (as of January 2000).

Focus	Funding[24]	ID Program Areas	Partners[25]
Bangladesh	Mission	Disease/AMR surveillance for ALRI, DD, dengue, JE, STIs, TB.	ICDDR,B, JHU, MOH, WHO
Cambodia	G, ANE	Surveillance and improvement of interventions for dengue, MDR malaria, TB.	FHI, MOH, NAMRU-2, UAB, WHO
Egypt	Mission	Surveillance and improvement of interventions for hepatitis, meningitis, schistosomiasis, STIs.	CDC, FHI, MOHP, NAMRU-3, PATH, Univ. Maryland, WHO
India	Mission	Disease/AMR surveillance for ALRI, STIs, TB.	CDC, INCLEN, MOH, WHO
Morocco	Mission	Disease surveillance for trachoma.	HKI, MOH
Nepal	Mission	Surveillance and control of malaria, kala-azar, and JE. AMR surveillance and improved rational drug use for ALRI, DD, kala-azar, malaria, STIs.	CDC, EHP, GTZ, ICDDR,B, MOH, RPM, WHO
Philippines	Mission	Disease/AMR surveillance and control activities for dengue, malaria, TB.	CDC, DOH
Thailand	ANE	Surveillance and improvement of interventions for MDR malaria.	AFRIMS, MOPH, WHO
Regional	ANE	ANE Bureau ID advisor; regional ID assessment; activity planning and coordination.	EHP, JHU Child Survival Fellows Program, WHO/WPR
Global	G	Global strategies for TB and AMR; new policies, treatment guidelines, and diagnostics for malaria, TB, AMR and surveillance.	BASICS, CDC, CHANGE, EHP, HIID, IUATLD, JHU, NIH, PATH, RPM, WHO

Appendix 4. Partial Listing of Regional Organizations/Networks in Asia and the Near East.

Name	Infectious Diseae Focus	Geographic Focus
Alliance for the Prudent Use of Antibiotics (APUA)	Rational drug use; advocacy	Worldwide
Asian Collaborative Training Network for Malaria Control (ACTMalaria)	Training programs	Southeast Asia
Asian Network for Surveillance of Resistant Pathogens (ANSORP)	AMR research	Asia
Association of South East Asian Nations (ASEAN)	Regional initiatives, including health	Southeast Asia
International Clinical Epidemiology Network (INCLEN)	Disease and AMR surveillance, research and training	Asia, Africa
International Network for the Rational Use of Drugs (INRUD)	Rational drug use	Asia, Africa
Mekong Malaria Forum (MMF)	Information exchange for malaria control	Southeast Asia
South Asia Infectious Disease Network (SAIDNET)	Capacity building in health systems, data sharing (disease, AMR), institutional linkages	South Asia
South Asian Association for Regional Cooperation (SAARC)	Regional initiatives, including health	South Asia
World Health Organization (WHO), Eastern Mediterranean, Southeast Asia, and Western Pacific Regional Offices	Regional health initiatives (Roll Back Malaria, Stop TB, others related to cross-border disease prevention/control), training, new guidelines, data collection/dissemination	Mid-East and Asia
United Nations Children's Fund (UNICEF), South Asia Regional Office	Regional initiatives including malaria and GIS disease mapping	South Asia

24. Mission = bilateral program; ANE = Asia and Near East Bureau; G = Global Bureau.
25. DOH, MOH, MOHP, MOPH = national health ministries. See page 3 for a list of acronyms.